

**Amendments to the Claims:**

This listing of claims will replace all prior versions and listings of claims in the application:

**Listing of Claims:**

1. (Canceled)
2. (Currently amended) ~~The A method of claim 1, wherein the comprising steps~~  
using fixed point arithmetic in evaluating a polynomial to calculate a set of coefficients are  
calculated by evaluating a polynomial for a notch filter and using the coefficients to  
program the notch filter to attenuate a resonant frequency of an apparatus.
3. (Original) The method of claim 2, wherein the polynomial is a polynomial interpolation of a non-linear function.
4. (Original) The method of claim 3, wherein the non-linear function is derived from a transformation of a notch filter transfer function from the  $s$ -domain to the  $z$ -domain.
5. (Original) The method of claim 4, wherein the non-linear function is derived from a bilinear transformation of the notch filter transfer function from the  $s$ -domain to the  $z$ -domain.
6. (Currently amended) ~~The A method of claim 1, wherein the set of coefficients~~  
are calculated by comprising steps using fixed point arithmetic in evaluating an

interpolating function that approximates an original function to calculate a set of coefficients for a notch filter and using the coefficients to program the notch filter to attenuate a resonant frequency of an apparatus.

7. (Original) The method of claim 6, wherein the original function is derived from a z-domain notch filter transfer function.

8. (Original) The method of claim 7, wherein the z-domain notch filter transfer function is obtained by transformation of an z-domain notch filter transfer function.

9. (Original) The method of claim 8, wherein the z-domain notch filter transfer function is obtained by bilinear transformation of the s-domain notch filter transfer function.

10-11. (Canceled)

12. (Currently amended) ~~The An apparatus of claim 11, wherein the set of coefficients are calculated by~~ comprising control circuitry capable of using fixed point arithmetic in evaluating a polynomial to calculate a set of coefficients for a notch filter and using the coefficients to program the notch filter to attenuate a resonant frequency of the apparatus.

13. (Original) The apparatus of claim 12, wherein the polynomial is a polynomial interpolation of a non-linear function.

14. (Original) The apparatus of claim 13, wherein the non-linear function is derived from a transformation of a notch filter transfer function from the  $s$ -domain to the  $z$ -domain.

15. (Original) The apparatus of claim 14, wherein the non-linear function is derived from a bilinear transformation of the notch filter transfer function from the  $s$ -domain to the  $z$ -domain.

16. (Currently amended) The An apparatus of claim 11, wherein the set of coefficients are calculated by comprising control circuitry capable of using fixed point arithmetic in evaluating an interpolating function that approximates an original function to calculate a set of coefficients for a notch filter and using the coefficients to program the notch filter to attenuate a resonant frequency of the apparatus.

17. (Original) The apparatus of claim 16, wherein the original function is derived from a  $z$ -domain notch filter transfer function.

18. (Original) The apparatus of claim 17, wherein the  $z$ -domain notch filter transfer function is obtained by transformation of an  $z$ -domain notch filter transfer function.

19. (Original) The apparatus of claim 18, wherein the  $z$ -domain notch filter transfer function is obtained by bilinear transformation of an  $s$ -domain notch filter transfer function.

20-26. (Canceled)

27. (New) The method of claim 2 wherein the apparatus is characterized by a servo system.

28. (New) The method of claim 6 wherein the apparatus is characterized by a servo system.

29. (New) The apparatus of claim 12 wherein the resonant frequency is characterized as being from a servo system.

30. (New) The apparatus of claim 16 wherein the resonant frequency is characterized as being from a servo system.

31. (New) The apparatus of claim 15 wherein the control circuitry comprises a processor capable of executing a set of written instructions to calculate the set of coefficients.

32. (New) The apparatus of claim 31 wherein the control circuitry comprises a memory to which the processor is capable of storing the set of coefficients.

33. (New) The apparatus of claim 31 wherein the processor is capable of programming the notch filter in accordance with the set of coefficients.

34. (New) The apparatus of claim 19 wherein the control circuitry comprises a processor capable of executing a set of written instructions to calculate the set of coefficients.

35. (New) The apparatus of claim 34 wherein the control circuitry comprises a memory to which the processor is capable of storing the set of coefficients.

36. (New) The apparatus of claim 34 wherein the processor is capable of programming the notch filter in accordance with the set of coefficients.